

REMARKS

A. Background

Claims 10-14 were pending in the application at the time of the Office Action. The Office Action objected to claim 12 on formal grounds. Claims 10-14 were rejected as being indefinite. Claims 10-14 were also rejected as being obvious over cited art. By this response Applicant has cancelled claim 11; amended claims 10, 12, and 14; and added new claims 15-26. As such, claims 10 and 12-26 are presented for the Examiner's consideration in light of the following remarks.

B. Proposed Amendments

By this response, Applicant has amended Figure 1b to address formal issues. Specifically, reference numerals cited in the specification have been added to the figure. Applicant has herein amended claims 10, 12, and 14 to further clarify, more clearly define, and/or broaden the claimed inventions to expedite receiving a notice of allowance. The amendments to the claims are supported in the application at least by Figures 2a-2c and the corresponding discussion in the specification, as well as page 8, line 4; and page 9, lines 4-13. Applicant has also added new claims 15-26 and submits that the new claims are also supported in the application. In view of the foregoing discussion, applicant submits that the amendments to the drawings and claims do not introduce new matter and entry thereof is respectfully requested.

C. Objections to the Claims

Paragraph 1 of the Office Action objects to claim 12 based on a formality. In view of amendments set forth herein to claim 12, Applicant respectfully submits that the objection to the claims has been overcome and should be withdrawn.

D. Indefiniteness Rejection

Paragraphs 2 and 3 of the Office Action reject claims 10-14 under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Office Action alleges that various limitations are either unclear or have insufficient antecedent basis. In view of amendments set forth herein to claims 10 and 14, Applicant respectfully submits that the indefiniteness rejection has been overcome and should be withdrawn.

E. Obviousness Rejections

1. Frost/Sackner combination

Paragraphs 5 and 6 of the Office Action reject claims 10, 11 and 13 under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 4,245,651 to Frost (“*Frost*”) in view of U.S. Patent No. 6,047,203 to Sackner et al. (“*Sackner*”). Claim 11 has been cancelled herein, thus rendering the rejection of that claim moot. Regarding claims 10 and 13, Applicant respectfully traverses this rejection and submits that the allegedly obvious combination would not include all the limitations recited in the rejected claims.

Frost is directed to a device that is used in a bed or cot to detect and give warning of the cessation of breathing movements of infants. See Abstract. The *Frost* device comprises a pack

that contains “a resiliently compressible assembly which emits noise while being compressed or expanded, and a microphone for detecting the noise thus produced.” Col. 1, lines 33-36. Specifically, *Frost* discloses that the noise producing assembly contains “a plurality of layers 14 and 16 of different flexible sheet materials.” Col. 2, lines 14-16. The sheets 14 are composed of materials “which emits crackling or rustling sounds while being bent or crumpled.” Col. 2, lines 35-37.

During use, the *Frost* pack is placed in contact with the chest wall of an infant, and the pack expands and contracts as the infant breathes. See col. 1, line 66 to col. 2, line 2. As the pack expands and contracts, the sheets 14 and 16 produce “rustling and crackling sounds,” which are detected by the microphone 12 and forwarded to a signal apparatus (shown in Figure 4) for processing. See col. 2, lines 56-64; col. 3, lines 1-25 and 62-66. If the sounds stop for a period of time, a signal is generated indicating that the infant has stopped breathing. See col. 3, line 67 to col. 4, line 14. Applicant notes that the sheets and microphone used in *Frost* do not sense pressure changes within a chamber, but simply detect movement of the sheets based on noise levels produced therefrom.

Because *Frost* discloses a device that only monitors sound made by sheets of crackling material, Applicant submits that *Frost* does not disclose or suggest “an item worn over the user’s body . . . wherein said item has at least one chamber formed between an inner wall and an outer wall . . . [and] a sensor for sensing fluctuations in a user’s lung operation; . . . said sensor is directly exposed to said enclosed volume **for sensing changes in pressure within said chamber** throughout inspiration and expiration,” as recited in amended claim 10.

Applicant further submits that adding the aforementioned elements to *Frost* would not be obvious. *Frost* discloses that its general object is “to provide simple, convenient and relatively

inexpensive means for detecting body movements and to provide alarm or signal means for use in conjunction therewith.” Col. 1. lines 26-29. The simple noise sensor fulfills this object. Modifying *Frost* to contain an enclosed volume of gas and adding a sensor to *Frost* that monitors the pressure of the gas as the infant breathes would add unnecessary complexity and cost to the Frost device, which is contrary to its stated object. Thus, one would not find it obvious to add the aforementioned elements to *Frost*.

Sackner is directed to a shirt that has electrodes and sensors sewn or otherwise attached thereto for monitoring a user’s physiological condition. See Abstract. *Sackner* was cited merely for allegedly disclosing “sav[ing] respiratory data and monitor[ing] the subject’s respiratory activities . . .” However, *Sackner* does not cure the deficiencies of *Frost*. That is *Sackner* also does not disclose or suggest the claimed “item” or “sensor” with accompanying limitations as recited in amended claim 10, as discussed above.

As such, Applicant submits that even if, *arguendo*, it would have been obvious to combine *Sackner* with *Frost* in the allegedly obvious manner set forth in the Office Action, the combination would not include all of the claim limitations recited in claim 10. Accordingly, Applicant respectfully requests that the obviousness rejection with regard to claim 10 be withdrawn. Claim 13 depends from claim 10 and incorporates the limitations thereof. As such, Applicant submits that claim 13 is distinguished over the cited art for at least the same reasons discussed above with regard to claim 10. Accordingly, Applicant respectfully requests that the obviousness rejection with regard to claim 13 also be withdrawn.

2. Frost/Sackner/Wright combination

Paragraph 7 of the Office Action rejects claim 14 under 35 USC § 103(a) as being unpatentable over *Frost* in view of *Sackner* as applied to claim 10, and further in view of U.S. Patent No. 4,559,953 to Wright et al. ("*Wright*"). *Wright* was merely cited for allegedly disclosing an inner wall that is substantially resilient and an outer wall that is substantially rigid. Applicant respectfully traverses this rejection.

Wright discloses an apparatus for detecting and measuring changes in the shape of a wall of an external body. See Abstract. The Wright apparatus does so by using a detector capsule 1 or 21 having a rigid body 2 and a flexible diaphragm 3 with a chamber disposed therebetween. As shown in Figures 1, 2, and 4, the detector capsule has a nozzle 6 through which air can pass into and out of the chamber. As the shape of a wall of the external body changes, the flexible diaphragm moves in response, changing the volume of the chamber and forcing air into or out of the chamber. By so doing, the pressure within the chamber will remain relatively unchanged. The *Wright* apparatus uses a volume transducer to detect and measure the changes in the shape of the wall by monitoring the change in volume of the chamber.

Claim 14 depends from claim 10 and thus incorporates the limitations thereof. Applicant submits that even if, *arguendo*, it would have been obvious to combine *Wright* with *Frost* and *Sackner* in the allegedly obvious manner set forth in the Office Action, the resulting combination would still not cure the deficiencies of the *Frost / Sackner* combination with regard to claim 10.

Specifically, because *Wright* is designed to incorporate an opening 35 in communication with a volume transducer which is external from the chamber, *Wright* also does not disclose or suggest "at least one chamber formed between an inner wall and an outer wall, said at least one chamber **having a substantially enclosed volume of gas disposed therein,**" and a sensor

directly exposed to said enclosed volume for “**sensing changes in pressure within said chamber**,” as recited in claim 10. Accordingly, Applicant respectfully requests that the obviousness rejections with regard to claim 14 be withdrawn.

3. Frost/Sackner/Schieberl combination

Paragraph 8 of the Office Action rejects claim 12 under 35 USC § 103(a) as being unpatentable over *Frost* in view of *Sackner* as applied to claim 11, and further in view of U.S. Patent No. 5,022,402 to Schieberl et al. (“*Schieberl*”). Applicant respectfully traverses this rejection.

Schieberl discloses a monitoring device that monitors the pulse and respiration rate of an infant. See Abstract. Among other things, the monitoring device includes a bladder member 18 with a pressure sensor 22 disposed external to the bladder member 18. See Figure 2.

Claim 12 depends from claim 10 and thus incorporates the limitations thereof. Applicant submits that even if, *arguendo*, it would have been obvious to combine *Schieberl* with *Frost* and *Sackner* in the allegedly obvious manner set forth in the Office Action, the resulting combination would still not cure the deficiencies of the *Frost / Sackner* combination with regard to claim 10.

Specifically, because the pressure sensor 22 of *Schieberl* is disposed external to the bladder member 18, *Schieberl* also does not disclose or suggest a sensor that is “**directly exposed to said enclosed volume for sensing changes in pressure within said chamber** throughout inspiration and expiration,” as recited in claim 10. Accordingly, Applicant respectfully requests that the obviousness rejections with regard to claim 12 be withdrawn.

No other objections or rejections are set forth in the Office Action.

F. New Claims

Applicant submits that each of new claims 15-26 is distinguished over the cited art of record. For example, new independent claim 19 is directed to “[a] device for determining pulmonary volume of a user,” the device including “an inner wall and an outer wall . . . bounding at least one chamber therebetween, a substantially enclosed volume of gas being disposed within the at least one chamber, . . . the inner wall and the outer wall being configured to compress the volume of gas as the inner wall is pushed towards the outer wall . . . and to decompress the volume of gas as the inner wall relaxes . . . ; a sensor directly exposed to said enclosed volume, the sensor being configured to sense changing pressure values of the volume of gas within the chamber; and means for capturing and evaluating successive pressure values from the sensor to determine values representative of lung fluctuations of the user and for translating said values into appropriate lung-evaluating information.” Applicant submits that for substantially the same reasons as discussed above, none of the cited art, alone or in combination, includes all of the recited limitations in combination with the other limitations of claim 19.

Claims 15-18 and 20-26 each depend from one of claims 10 and 19 and thus incorporate the limitations thereof. As such, Applicant submits that claims 15-18 and 20-26 are distinguished over the cited art for at least the same reasons discussed above regarding claims 10 and 19.

G. Conclusion

Applicant notes that this response does not discuss every reason why the claims of the present application are distinguished over the cited art. Most notably, applicant submits that many if not all of the dependent claims are independently distinguishable over the cited art.

Applicant has merely submitted those arguments which it considers sufficient to clearly distinguish the claims over the cited art.

In view of the foregoing, applicant respectfully requests the Examiner's reconsideration and allowance of claims 10 and 12-26 as amended and presented herein.

In the event there remains any impediment to allowance of the claims which could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate such an interview with the undersigned.

Dated this 19th day of January 2008.

Respectfully submitted,

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